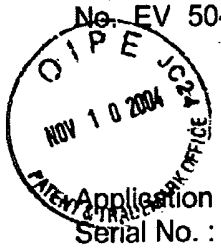
Express Mail Label
No. EV 504795591 US

UMO 1521.1
PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of James T. English et al. Art Unit 1639
Serial No. : 09/829,549
Filed : April 10, 2001
Confirmation No. 8198
For PHAGE DISPLAY SELECTION OF ANTI FUNGAL PEPTIDES
Examiner : Teresa D. Wessendorf

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

November 10, 2004

AMENDMENT D

Sir:

In response to the Office Action mailed June 10, 2004, and reinstated September 13, 2004, please enter the following amendments and consider the following remarks set forth in this Amendment D and Response After Request For Continued Examination.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

Conclusion begins on page 13 of this paper.

11/12/2004 CNGUYEN 00000136 09829549
03 FC:2203 150.00 OP

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (previously presented) A method for identification of non-immunoglobulin peptides having an affinity for the surface of a fungus comprising:

(a) constructing a library of peptides by,

(i) preparing random oligonucleotides;

(ii) inserting said oligonucleotides into a vector that expresses peptides encoded by said random oligonucleotides on its surface and is capable of transfecting a host cell;

(iii) transfecting a host cell with said vector to amplify said vector in an infectious form to create a library of peptides on the surface of said vector;

(b) contacting said vector expressing said peptide library with a target fungus and removing unbound vector;

(c) eluting bound vector from said fungus;

(d) amplifying said bound vector;

(e) sequencing the oligonucleotides contained in said eluted vector;

(f) deducing the amino acid sequence of peptides encoded by said oligonucleotides contained in said eluted vector; and

(g) selecting the non-immunoglobulin peptides for which the amino acid sequence has been deduced.

2. **(currently amended)** The method of **any one of** claim**s** 1**, 48, or 49** further comprising repeating steps (b) through (d) at least once.

3. **(currently amended)** The method of **any one of** claim**s** 1**, 48, or 49**, wherein said vector is a fusion phage vector.

4. **(currently amended)** The method of **any one of** claims 1, **48, or 49**, wherein said vector is a fusion phage vector selected from the group consisting of type 8, type 88, type 8+8, type 3, type 33, type 3+3, type 6, type 66, type 6+6, phage T7 and phage 8.

5. **(currently amended)** The method of **any one of** claims 1 **or 48**, wherein the sequence of said random oligonucleotide is GCA GNN (NNN)7 or SEQ ID NO: 1.

6. **(currently amended)** The method of **any one of** claims 1, **48, or 49**, wherein said peptide is expressed as part of a coat protein of said vector.

7. (original) The method of claim 6, wherein said coat protein is a pIII or a pVIII coat protein.

8. **(currently amended)** The method of **any one of** claims 1, **48, or 49**, further comprising determining the binding affinity of said peptides to said target fungus.

9. **(currently amended)** The method of **any one of** claims 1 **or 48**, wherein each of said peptides are of the same length, the length being 6 to 15 amino acids.

10-31. (canceled)

32. **(currently amended)** The method of **any one of** claims 1 **or 49** wherein the target fungus is a plant pathogenic fungus.

33. **(currently amended)** The method of **any one of** claims 1 **or 49** wherein the target fungus is a member of genus *Phytophthora*.

34. **(currently amended)** The method of **any one of** claims 1**or 49** wherein the target fungus is selected from the group consisting of *Phytophthora sojae*, *Phytophthora*

capsici, *Phytophthora cactorum*, *Phytophthora palmivora*, *Phytophthora cinnamomi*, *Phytophthora infestans*, and *Phytophthora parasitica*.

35. **(currently amended)** The method of **any one of** claims 1 **or 49** wherein the target fungus is selected from the group consisting of *Phytophthora sojae*, *Phytophthora capsici*, *Phytophthora palmivora*, *Phytophthora cinnamomi*, and *Phytophthora parasitica*.

36. **(currently amended)** The method of **any one of** claims 1 **or 49** wherein the target fungus is *Phytophthora sojae* or *Phytophthora capsici*.

37. **(currently amended)** The method of **any one of** claims 1, **48, or 49** wherein the vector expressing the peptide library is contacted with the target fungus at different life stages of the target fungus.

38. **(currently amended)** The method of **any one of** claims 1, **48, or 49** wherein the vector expressing the peptide library is contacted with the target fungus at oospore life stage or chlamydospore life stage.

39. **(currently amended)** The method of **any one of** claims 1, **48, or 49** wherein the vector expressing the peptide library is contacted with the target fungus at zoospore life stage.

40. **(currently amended)** The method of **any one of** claims 1, **48, or 49** wherein the vector expressing the peptide library is contacted with the target fungus at germling life stage.

41. **(currently amended)** The method of **any one of** claims 1 **or 48** wherein each of said peptides are of a same length, the length being 8 amino acids.

42. **(currently amended)** The method of **any one of** claims 1 **or 48** wherein the peptide library is an f8-1 peptide library.

43. **(currently amended)** The method of **any one of** claims 1 **or 48** wherein each of said peptides are of a same length, the length being 15 amino acids.

44. **(currently amended)** The method of **any one of** claims 1 **or 48** wherein the peptide library is an f88-4 peptide library.

45. **(currently amended)** The method of **any one of** claims 1, **48, or 49**, further comprising repeating steps (b) through (d) at least twice.

46. **(currently amended)** The method of **any one of** claims 1, **48, or 49**, further comprising repeating steps (b) through (d) at least three times.

47. **(currently amended)** The method of **any one of** claims 1, **48, or 49** wherein the bound vector is amplified in an *E. coli*.

74 48-73 (NE)

~~48.~~ **(new)** A method for identification of non-immunoglobulin peptides having an affinity for the surface of a fungus comprising:

R-126

(a) constructing a library of peptides by,

(i) preparing random oligonucleotides;

(ii) inserting said oligonucleotides into a vector that expresses peptides encoded by said random oligonucleotides on its surface and is capable of transfecting a host cell;

(iii) transfecting a host cell with said vector to amplify said vector in an infectious form to create a library of peptides on the surface of said vector;

(b) contacting said vector expressing said peptide library with a target fungus and removing unbound vector, wherein the target fungus is selected from the group consisting of *Phytophthora sojae*, *Phytophthora capsici*, *Phytophthora palmivora*, *Phytophthora cinnamomi*, and *Phytophthora parasitica*;

(c) eluting bound vector from said fungus;

(d) amplifying said bound vector;

(e) sequencing the oligonucleotides contained in said eluted vector;

(f) deducing the amino acid sequence of peptides encoded by said oligonucleotides contained in said eluted vector; and

(g) selecting the non-immunoglobulin peptides for which the amino acid sequence has been deduced.

75

~~45.~~ **(new)** A method for identification of non-immunoglobulin peptides having an affinity for the surface of a fungus comprising:

(a) constructing a library of peptides by,

(i) preparing random oligonucleotides;

(ii) inserting said oligonucleotides into a vector that expresses peptides encoded by said random oligonucleotides on its surface and is capable of transfecting a host cell;

(iii) transfecting a host cell with said vector to amplify said vector in an infectious form to create a library of peptides on the surface of said vector;

wherein the library of peptides is (1) an f8-1 peptide library, wherein each peptide of the f8-1 peptide library has a length of 8 amino acids or (2) an f88-4 peptide library, wherein each peptide of the f88-4 peptide library has a length of 15 amino acids;

(b) contacting said vector expressing said peptide library with a target fungus and removing unbound vector;

(c) eluting bound vector from said fungus;

(d) amplifying said bound vector;

(e) sequencing the oligonucleotides contained in said eluted vector;

(f) deducing the amino acid sequence of peptides encoded by said oligonucleotides contained in said eluted vector; and

(g) selecting the non-immunoglobulin peptides for which the amino acid sequence has been deduced.